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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/630,385

07/30/2003

Svein Torleif Vaage

PGS-03-02US

8343

7590

09/22/2004

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EXAMINER

WALLING, MEAGAN S

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,385

Applicant(s)

VAAGE ET AL.

Examiner

Meagan S Walling

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-50 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11212003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Borselen (US 2002/0143470).

Regarding claim 1, Borselen teaches sorting seismic signals such that events therein resulting from actuations of the first source are substantially coherent in all spatial directions (see paragraph 47, lines 2-5); coherency filtering the first source coherency sorted signals (see paragraph 47, lines 10-12); sorting the seismic signals such that events therein resulting from actuations of the second source are substantially coherent in all spatial directions (see paragraph 47, lines 2-5); and coherency filtering the second source coherency sorted signals (see paragraph 47, lines 10-12).

Allowable Subject Matter

2. Claims 2-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of allowability of claim 2 is the inclusion of the limitation of subtracting the coherency filtered first source coherency sorted signals and the coherency filtered second source coherency sorted signals from the seismic signals to generate residual seismic signals; sorting the residual seismic signals such that events therein resulting from actuations of the first source are substantially coherent in all spatial directions; coherency filtering the first source coherency sorted residual signals; sorting the residual seismic signals such that events therein resulting from actuations of the second source are substantially coherent in all spatial directions; and coherency filtering the second source coherency sorted residual signals. It is this limitation in the current combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 9 is the inclusion of the limitation that sorting the seismic signals comprises generating a common channel plane gather with respect to the first source. It is this limitation in the current combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 10 is the inclusion of the limitation that sorting the seismic signals comprises generating a common channel plane gather with respect to the second source. It is this limitation in the current combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 11 is the inclusion of the limitation that coherency filtering comprises slant stack processing. It is this limitation in the current combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

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The primary reason for the indication of allowability of claim 14 is the inclusion of the limitation that the sorting comprises sorting seismic traces into the common channel/common shot domain. It is this limitation in the current combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 15 is the inclusion of the limitation that the sorting comprises sorting seismic traces into the common depth point/common offset domain. It is this limitation in the current combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

3. Claims 16-50 are allowed.

The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claim 16 is the inclusion of the limitation of towing a first seismic energy source and at least one seismic sensor system; towing a second seismic energy source at a selected distance from the first seismic energy source; actuating the first seismic energy source and the second seismic energy source in a plurality of firing sequences, each of the firing sequences including firing of the first source and the second source and recording signals generated by the at least one seismic sensor system, a time interval between firing the first source and the second source varied between successive ones of the firing sequences; sorting the seismic signals such that events therein resulting from actuations of the first source are substantially coherent in all spatial directions; coherency filtering the first source coherency sorted signals; sorting the seismic signals such that events therein resulting from actuations of the second source are substantially coherent in all spatial directions; and coherency

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filtering the second source coherency sorted signals. It is this limitation in the current combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the allowance of claim 36 is the inclusion of the limitation of sorting seismic signals resulting from actuating at least two different seismic energy sources, the sources actuated to provide a variable time delay between successive actuations of a first one and a second one of the sources, the sorting performed such that events therein resulting from actuations of the first source are substantially coherent in all spatial directions; coherency filtering the first source coherency sorted signals; sorting the seismic signals such that events therein resulting from actuations of the second source are substantially coherent in all spatial directions; and coherency filtering the second source coherency sorted signals. It is this limitation in the current combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

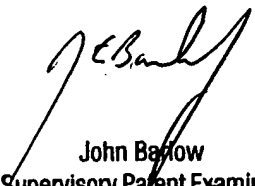
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meagan S Walling whose telephone number is (571) 272-2283. The examiner can normally be reached on Monday through Friday 8:30 AM to 5 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

msw



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